



Joint news release

Bosch and BASF expand their cooperation for digital agriculture

- Joint development activities placed under one roof
- Smart spraying for efficient, eco-friendlier herbicide use
- Planned market launch in 2021

Stuttgart / Cologne, Germany, November 7, 2019 – Bosch and xarvio™ Digital Farming Solutions of BASF are further intensifying their successful cooperation in the development of digital solutions for farming. The companies have now established a project center that enables them to undertake their joint research and development activities at the same location. Since 2016, employees of the two companies have already been working together on the smart spraying project, a technology for precise herbicide application that significantly reduces the total amount of herbicides used. The market launch of Smart Spraying is planned for 2021. Further joint activities are planned.

“Bringing the team members together in a dedicated center of competence pools their expertise and increases the potential for synergies as a result of the direct channels of communication and coordination within the project group,” said Andrew Allen, responsible for the Commercial Vehicles and Off-Road operating unit at Robert Bosch GmbH.

The smart spraying concept by Bosch and xarvio focuses on the precise application of herbicides in the field to control weeds. With the smart spraying solution, Bosch and xarvio provide a smart system that can differentiate a weed from a crop plant and applies herbicides in a targeted manner.

Smart Spraying finds, detects and sprays weeds within milliseconds

As the sprayer passes over the field, its on-board cameras record the vegetation over the entire area. A smart spraying management system analyzes the sensor signals online and identifies the presence of a crop plant or weed. The system then controls the sprayer jets and the herbicide is applied as needed. Weed-free areas, on the other hand, remain herbicide-free. The entire procedure – scanning, identification, and application – takes just a few milliseconds and is performed in a single processing step.

Bosch's focus in the research and development cooperation is on the camera sensor technology, image processing and pattern recognition, control units, and system connectivity. "In daily practical use in the field, the field sprayer with the smart spraying technology is connected to the xarvio FIELD MANAGER, which uses various parameters to determine precisely which and how much plant protection product the respective crop needs," explained Tobias Menne, head of BASF Digital Farming. xarvio FIELD MANAGER is a digital solution that helps farmers make agronomic decisions in various areas of their work. The aim is to achieve more efficient and eco-friendly cultivation that ensures optimal use of each section of field. Farmers can at any time view the field status, obtain recommendations for each field, and download a set of maps that indicate the application recommendations for each of the individual field zones.

Initial field trials with prototypes in Europe and in South and North America yielded extremely positive results. "One of the next steps on the road to readying the system for the market is optimization of the sprayer's resolution to achieve even more precise herbicide application," said Andrew Allen.

Media contact:

BASF

Marko Jelacic

Phone: +49 621 60-20180

Email: marko.jelacic@basf.com

Bosch

Cornelia Dürr

Phone: +49 7062 911-1986

Email: Cornelia.Duerr@de.bosch.com

About BASF's Agricultural Solutions division

With a rapidly growing population, the world is increasingly dependent on our ability to develop and maintain sustainable agriculture and healthy environments. Working with farmers, agricultural professionals, pest management experts and others, it is our role to help make this possible. That's why

we invest in a strong R&D pipeline and broad portfolio, including seeds and traits, chemical and biological crop protection, soil management, plant health, pest control and digital farming. With expert teams in the lab, field, office and in production, we connect innovative thinking and down-to-earth action to create real world ideas that work – for farmers, society and the planet. In 2018, our division generated sales of €6.2 billion. For more information, please visit www.agriculture.basf.com or any of our social media channels.

About xarvio™ Digital Farming Solutions

xarvio is at the forefront of the digital transformation of agriculture optimizing crop production. xarvio offers digital products, based on a global leading crop model platform, which deliver independent field-zone-specific agronomic advice enabling farmers to produce their crops most efficiently and sustainably. The xarvio products SCOUTING & FIELD MANAGER are being used by farmers in more than 100 countries worldwide.

About Bosch

Mobility Solutions is the largest Bosch Group business sector. In 2018, its sales came to 47.6 billion euros, or 61 percent of total group sales. This makes the Bosch Group one of the leading automotive suppliers. The Mobility Solutions business sector pursues a vision of mobility that is accident-free, emissions-free, and fascinating, and combines the group's expertise in the domains of automation, electrification, and connectivity. For its customers, the outcome is integrated mobility solutions. The business sector's main areas of activity are injection technology and powertrain peripherals for internal-combustion engines, diverse solutions for powertrain electrification, vehicle safety systems, driver-assistance and automated functions, technology for user-friendly infotainment as well as vehicle-to-vehicle and vehicle-to-infrastructure communication, repair-shop concepts, and technology and services for the automotive aftermarket. Bosch is synonymous with important automotive innovations, such as electronic engine management, the ESP anti-skid system, and common-rail diesel technology.

The Bosch Group is a leading global supplier of technology and services. It employs roughly 410,000 associates worldwide (as of December 31, 2018). The company generated sales of 78.5 billion euros in 2018. Its operations are divided into four business sectors: Mobility Solutions, Industrial Technology, Consumer Goods, and Energy and Building Technology. As a leading IoT company, Bosch offers innovative solutions for smart homes, smart cities, connected mobility, and connected manufacturing. It uses its expertise in sensor technology, software, and services, as well as its own IoT cloud, to offer its customers connected, cross-domain solutions from a single source. The Bosch Group's strategic objective is to deliver innovations for a connected life. Bosch improves quality of life worldwide with products and services that are innovative and spark enthusiasm. In short, Bosch creates technology that is "Invented for life." The Bosch Group comprises Robert Bosch GmbH and its roughly 460 subsidiary and regional companies in over 60 countries. Including sales and service partners, Bosch's global manufacturing, engineering, and sales network covers nearly every country in the world. The basis for the company's future growth is its innovative strength. At nearly 130 locations across the globe, Bosch employs some 68,700 associates in research and development.

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